

Remarks

Overview

In the Office Action under reply, claims 1-6, 9, 14-21, 24, 26-56, 58, and 59 have been examined. Claim 44 has been indicated by the Examiner to be allowable and claim 57 has been withdrawn from consideration. The remaining claims have been previously canceled.

Entry of the foregoing amendments is kindly requested in the interest of expediting the prosecution and removing the remaining issues from consideration. In this regard, it is respectfully submitted that the present amendments to the claims do not raise any additional issues requiring further consideration and/or search by the Examiner. As the Examiner will note, the amendments simply remove issues from consideration by including the subject matter from allowed claim 44 in the remaining claims. As the subject matter of the present claims was previously under consideration by the Examiner, entry of the foregoing amendments is proper.

In the Action, claims 1 and 9 were objected to as containing the recitation "in step (b)" without proper antecedent basis for such a step in the claimed methods. Claims 9, 14, 15, 28-32 and 37-40 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. In addition, claims 9, 14, 15, 28-32, and 37-40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dunn et al. (U.S. Patent No. 5,200,334) in view of Reetz et al. (Biotechnology and Bioengineering article), and claims 45-56, 58, and 59 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dunn et al. in view of Avnir et al. (U.S. Patent No. 5,300,564), Swedberg et al. (U.S. Patent No. 6,240,790), and Freeman et al. (U.S. Patent No. 6,194,900).

Applicant respectfully traverses these rejections for the reasons explained in detail below.

Amendments to the Claims

By the foregoing amendments, the claims have generally been amended to include the features of claim 44 and to correct other issues noted in the Office Action. More specifically, the claims have been amended as follows:

Independent claims 1, 9, and 58 have been amended to include the language of allowable claim 44, as supported by this claim and by the specification.

Dependent claims 2 and 3 have been amended to recite that the sol-gel is aged after the sol-gel is formed and before the sol-gel is crushed, as supported by the specification at page 14, lines 15-26.

Claim 24 has been amended to refer to the "sol-gel" of claims 2 and 1, and claim 27 has been amended to depend from claim 26 rather than claim 1, as supported at least by the original claims.

Claim 30 has been amended to delete the reference to "step (b)" in claim 9 and to instead refer to the formation of shaped forms "prior to crushing." Support for this language may be found in the specification at page 14, lines 15-26 and page 10, lines 15-19.

Claims 45 and 46 have been rewritten to depend from claim 44.

Applicant notes that the foregoing claim amendments are not to be interpreted as abandonment of any canceled subject matter that may be further prosecuted in any follow-on divisional, continuation, continuation-in-part, or other related applications.

No new matter has been added.

Claims Status

Following entry of the above amendments, the status of the claims is as follows (as indicated in the listing of claims set forth above):

Claims 4-8, 10-14, 22, 23, 25 and 57 are canceled without prejudice or disclaimer;

Claims 1-3, 9, 24, 27, 28, 30, 43, 45, 46 and 48 have been currently amended;

Claims 15, 21, 42, 47, 48, 51, 54, and 59 have been previously amended; and

Claims 1-3, 9, 15-21, 24, 26-56, 58, and 59 remain pending.

Objections to the Claims

In the Office Action, claims 1 and 9, as well as the claims that depend from these independent claims, have been objected to due to the reference to "in step (b)" for lack of antecedent basis for such a step in the claims.

By the foregoing amendment, each of claims 1 and 9 has been amended to remove the reference to "step (b)." As such, applicant submits that the objection is moot. Withdrawal of the objection is respectfully requested.

Rejections under 35 U.S.C. §112, second paragraph

Claims 9, 14, 15, 28-32, and 37-40 stand rejected under 35 U.S.C. 112, second paragraph as being indefinite. Applicant respectfully traverses this rejection.

In the Office Action, it is asserted that there is no linkage between the method steps claimed and the preamble language "immobilizing a biological molecule in a porous inorganic matrix incorporated into a microanalytical device." Applicant disagrees.

As amended, claim 9 provides sufficient "linkage" between the recited steps and the language of the preamble. For example, the steps recited include forming a sol-gel, adding a biological molecule to entrap one or more such molecules in the sol-gel (entrapped within pores of the gel), crushing the sol-gel into particulates and forming the sol-gel particulates into a bed. As is further recited in the claim, the porous inorganic sol-gel matrix is formed in situ.

From this language, it is clear that the biological molecule is entrapped (i.e., immobilized) within pores of the gel particulates forming a bed within the microanalytical device and that the porous inorganic sol-gel matrix is formed in situ. As such, the steps recited in the claim correspond to the language used in the preamble.

For at least the foregoing reasons, applicant respectfully submits that the language of the claims is clear within the meaning of the second paragraph. Withdrawal of the rejection under 35 U.S.C. 112, second paragraph is requested.

Rejections under 35 U.S.C. §103(a)

Claims 9, 14, 15, 28-32, and 37-40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Dunn et al. (U.S. Patent No. 5,200,334) in view of Reetz et al. (Biotechnology and Bioengineering article).

In addition, claims 45-56, 58, and 59 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Dunn et al. in view of Avnir et al. (U.S. Patent No. 5,300,564), Swedberg et al. (U.S. Patent No. 6,240,790), and Freeman et al. (U.S. Patent No. 6,194,900).

Applicant respectfully submits that these rejections are obviated by the foregoing amendments for at least the following reasons.

As noted above, the subject matter of claim 44 has been indicated to be allowable in the Office Action and has been incorporated into each of independent claims 1, 9 and 58. In addition, claims 45 and 46 (formerly independent) have been rewritten to depend from claim 44. Since all of the currently pending claims now include the features of allowable claim 44, all of the claims should be in allowable form.

For at least the foregoing reasons, applicant respectfully submits that the rejections under §103(a) have been obviated. Withdrawal of the rejections under 35 U.S.C. §103(a) is requested.

Conclusion

Accordingly, applicants respectfully submit that the pending claims are novel and nonobvious over the art, and are in condition for allowance. A prompt notification to that effect would be appreciated.

If the Examiner has any questions concerning this amendment or the accompanying remarks, a telephone call to the undersigned would be appreciated.

Respectfully submitted,

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